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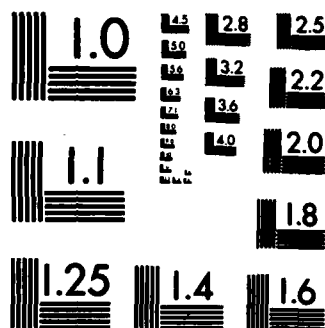
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FINAL REPORT

The FASEB Summer Research Conference on Neuronal Cell Cultures, funded in part by this grant, was held in Saxton's River, Vermont from August 12-17, 1984. Dr. Phillip Nelson and I served as co-chairmen for the meeting. We organized the meeting around research areas in which new and interesting advances were currently being made in cellular neurobiology, rather than choosing a primarily methodological emphasis involving neuronal cell culture as the focus. We retained a neuronal cell culture theme in the sense that most of the work discussed did employ cell culture approaches.

The meeting was organized into 9 morning and evening sessions with 3 formal presentations in each session. Session chairpersons were selected to introduce the speakers and to moderate subsequent discussion. Topics included growth cones and cell interactions, molecular genetics, neuronal growth factors (sessions A and B), synapse formation (neurotransmitters and receptors), ion channels and membrane constituents, electrical activity and circuit behavior, and cell separation and cell markers. Internationally renowned authorities in each of these fields summarized the current state of knowledge and also reviewed their own ongoing research. Each presentation was followed by a discussion period in which the meeting participants raised questions and offered comments in addition to those of the speakers. These periods were invariably lively and informative, and often were finally truncated by time constraints. In addition to the formal sessions, a block of time each day (usually in the afternoon) was kept free for informal discussion and consultation. On 2 afternoons poster sessions were arranged in which participants not scheduled to speak were able to present summaries of their own research. Lists of the speakers, participants, scheduled sessions, and posters are attached.

The meeting was a great success. The topics covered were timely and interesting. The format provided an important opportunity for experts in their fields to exchange results and ideas while at the same time making this information available to others working in related areas or interested in using similar approaches. The comments and discussion provided by the participants enriched the meeting and reinforced our impression that the focus chosen was a good decision. The strategy of carrying out the meeting in a relatively isolated environment was critical for its success: distractions were minimized, ample time existed for discussions in small groups, and ideas could be pursued over a period of several days either in free-flowing exchanges or in spirited arguments.

Future meetings will be important in related areas of cellular and molecular neurobiology which are currently experiencing rapid and exciting progress. Again, the format of the FASEB and Gordon Conferences are likely to meet with the greatest success in these areas.

PROGRAM FOR "NEURONAL CELL CULTURE" CONFERENCE
SPONSORED BY FASEB AT SAXTON'S RIVER, VERMONT

AUGUST 12 - 17, 1984

I. Growth cones and cell interactions

- Gerald Edelman - "Cell Adhesion Molecules in Neural Morphogenesis"
- Karl Pfenninger - "Developmentally Regulated Proteins on the Nerve Growth Cone"
- David Carey - "Schwann cell, nerve cell, matrix interaction"

II. Molecular Genetics

- William Hahn - "Connectivity and genes expressed post-natally"
- J.G. Sutcliffe - "Brain specific gene expression"
- John Merlie - "Regulation of ACh Receptors"

III. Factors - A

- Darwin Berg - Chairman
- Hans Thoenen - "Purified neurotrophic factors modulation and their actions by molecules of the extracellular matrix"
- Randall Pittman - "The role of proteases and their inhibitors in neuron-target cell interactions"
- Marston Manthorpe - "Purified proteins which promote the survival and neuritic growth of cultured neurons"

IV. Factors - B

- Douglas Brenneman - "Trophic regulation of activity-dependent neuron survival"
- William Matthew - "Monoclonal antibodies used to study neurite outgrowth and surface interactions"
- M.R. Bennett - "Motoneurons and retinal ganglion cells in culture: factors in the formation of stable synapses"

V. Synapse Formation (Transmitters)

- Edwin Furshpan - "Transmitter status and plasticity in sympathetic neurons"
- Thomas Jessel - "Synaptic transmitters and surface antigens of primary sensory neurons"
- Phillip Nelson - "Synaptic and extra-synaptic responses to excitatory amino acids"

VI. Synapse Formation (Receptors)

- Joshua Sanes - "The basal lamina of the neuromuscular junction"
- Jack McMahan - "Basal lamina components that cause the aggregation of cell surface molecules involved in neuromuscular transmission"
- Mark Bothwell - "Characterization of NGF receptors with monoclonal antibodies"

VII. Ion Channels - Membrane Constituents

- Jane Talvenheimo - "Regulation of sodium channel development in rat muscle cells"
Joachim Bormann - "Inhibitory ion channels in nerve cell membranes"
Li-Yen Mae Huang - "What we have learned from patch recordings of cultured cells"

VIII. Electrical Activity - Circuit Behavior

- Lawrence Cohen - Chairman
Guenter Gross - "The use of laser cell surgery and photoetched multi-microelectrode plates for network simplification and the long-term monitoring of simultaneous activity"
Amiram Grinvald -
Donald Perkel - "Detecting functional interaction in a population of simultaneously recorded neurons"

IX. Cell Separation and Cell Markers

- Martin Raff - "An immunological approach to neural cell development in the rat CNS"
David Trisler - "Molecules that identify cell types or position in the retina"
Melitta Schachner -

Support from the following organizations for this conference on
Neuronal Cell Cultures is gratefully acknowledged:

Office of Naval Research, Department of the Navy
National Science Foundation
Federation of American Societies for Experimental Biology

PARTICIPANT LIST

** Conference : 10 -- Neuronal Cell Cultures **

FASEB SUMMER RESEARCH CONFERENCES

Dr. Philip Alvarez
Neuroscience Dept.
New York University
New York, NY 10003

Dr. Gary Banker
Dept. Anatomy
Albany Medical College
Albany, NY 12208

Dr. William Bartlett
Dept. Anatomy
Wayne State University
540 E. Canfield
Detroit, MI 48202

Dr. Nikki Baumrind
Dept Physiology & Biophysics
Washington University
St. Louis, MO 63110

Dr. Max Bennett
Neurobiology Research Center
University of Sydney
Sydney NSW2006 AUSTRALIA

Dr. Darwin Berg
Dept. of Biology, B-022
Univ of California/San Diego
La Jolla, CA 92093

Dr. Joachim Bormann
Biophysikalische Chemie
Max-Planck-Institut
Postfach 968
D-3400 Gottingen GERMANY

Dr. Mark Bothwell
Dept Molecular Biology
Princeton University
Biochemical Science Lab
Princeton, NJ 08544

Dr. Douglas Brenneman
National Institutes of Health
Bldg. 36, Room 2A-21
Bethesda, MD 20205

Mr. Bernard Brown
Toxicology Branch
Chemical Research & Dev Cntr
Aberdeen Proving Ground, MD 21009

Dr. Susan Burgess
Dept Molecular Biology
Wellcome Research Laboratories
Burroughs Wellcome Co.
Research Triangle Park, NC 27709

Dr. Richard Burry
Dept. Anatomy
Ohio State University Col Med
333 West 10th Avenue
Columbus, OH 43210

Dr. David Carey
P. O. Box 33932
Louisiana State Univ Med Cent
1501 Kings Highway
Shreveport, LA 91130

Dr. Guo-Guang Chen
Lab of Neurophysiology
NINCDS/NIH
Bethesda, MD 20205

Dr. Philippa Claude
Regional Primate Research Cntr
University of Wisconsin
Madison, WI 53706

Dr. Penelope Coates
Dept. Anatomy
Texas Tech University
HSC School of Medicine
Lubbock, TX 79430

PARTICIPANT LIST

** Conference : 10 -- Neuronal Cell Cultures **

FASEB SUMMER RESEARCH CONFERENCES

Dr. Lawrence Cohen
Dept Physiology
Yale University Sch Medicine
333 Cedar Street
New Haven, CT 06510

Dr. Alison Cole
Lab of Neurophysiology
NINCDS/NIH
Bethesda, MD 20205

Dr. Gregory Cole
Dept Biological Chemistry
Washington University Sch Med
Box 8094
St. Louis, MO 63110

Dr. Stanley Crain
Dept Neuroscience
Albert Einstein Col Medicine
1300 Morris Park Ave.
Bronx, NY 10461

Dr. William Crank
Neurobiology Div, Physiol Dept
State Univ New York/Buffalo
Buffalo, NY 14214

Dr. Ulrike Dohrmann
Abteilung Neurochemie
Max-Planck Inst Psychiatry
8033 Martinsried WEST GERMANY

Dr. Gerald Edelman
Dev & Molecular Biology
Rockefeller University
66th Street & York Ave.
New York, NY 10021

Dr. Robert Fellows
Dept. Physiology & Biophysics
University of Iowa
Iowa City, IA 52242

Dr. John Fowler
Dept. Neuroscience
Albert Einstein Col Medicine
Bronx, NY 10461

Dr. Edwin Furshpan
Dept Neurobiology
Harvard Medical School
25 Stattuck Street
Boston, MA 02115

Dr. Robert Garofalo
Dept Anatomy & Cell Biology
Columbia University Col P&S
630 W. 168th Street
New York, NY 10032

Dr. John Glomset
Dept Medicine & Biochem, SL-15
University of Washington
Health Sciences Bldg. J-611F
Seattle, WA 98195

Dr. Amiram Grinvald
Dept Neurobiology
Weizmann Institute of Science
Rehovot, ISRAEL

Dr. Guenter Gross
Dept Biology
Texas Women's University
Denton, TX 76204

Dr. William Hahn
Dept Anatomy
University Colorado Med Center
4200 East Ninth Ave.
Denver, CO 80262

Dr. Sigrid Henke-Fahle
Entwicklungs Biologie
Max-Planck Institute
Spemannstrasse 35/I
D-7400 Tuebingen WEST GERMANY

PARTICIPANT LIST

** Conference : 10 -- Neuronal Cell Cultures **

FASEB SUMMER RESEARCH CONFERENCES

Dr. Dana Hilt
Lab of Biochemical Genetics
Nat Heart Lung Bood Inst/NIH
Bethesda, MD 20205

Dr. Liyen Mae Huang
Marine Biomedical Institute
University of Texas Med Branch
Galveston, TX 77550

Dr. James Huettnr
Dept. of Neurobiology
Harvard Medical School
Boston, MA 02115

Dr. Carolyn Hyman
Dept Anatomy & Cell Biology
Columbia University
630 W. 168th Street
New York, NY 10032

Dr. Christine Ingraham
Neurobiology Prgm/Dept Pharm
Univ North Carolina Sch Med
1139 F.L.O.B.
Chapel Hill, NC 27514

Dr. Michele Jacob
Dept Biology, B-022
Univ California/San Diego
La Jolla, CA 92093

Dr. Lee Jensen
Dept. Biochemistry
Univ California/Berkeley
Berkeley, CA 94720

Dr. Thomas Jessell
Dept Neurobiology
Harvard Medical School
25 Shattuck St.
Boston, MA 02115

Dr. Mahlon Johnson
Dept. Pathology/Div. Neuropath
Vanderbilt Medical School
Nashville, TN 37232

Dr. Valerie Kalter
Dept Medicine, Div Pharmacol
Univ of California/San Diego
La Jolla, CA 92093

Dr. Pamela Knapp
Dept. Anatomy
Wayne State University
540 E. Canfield
Detroit, MI 48201

Mr. Douglas Kniss
Dept. Anatomy
Ohio State University Col Med
333 West 10th Avenue
Columbus, OH 43210

Dr. Jean Lauder
Department of Anatomy
Univ North Carolina Sch Med
108 Swing Bldg., 217H
Chapel Hill, NC 27514

Dr. Robert Ledeen
Dept Neurology
Albert Einstein Col Medicine
Bronx, NY 10461

Ms. Laura Lillien
Neuroscience Training Program
Univ Wisconsin Primate Center
1223 Capitol Court
Madison, WI 53706

Dr. Marcia Litzinger
Lab of Developmental Neurobiol
Child Hlth & Human Dev/NIH
Bethesda, MD 20205

PARTICIPANT LIST

** Conference : 10 -- Neuronal Cell Cultures **

FASEB SUMMER RESEARCH CONFERENCES

Dr. Tsuei-Chu Liu
Dept Veterinary Biosciences
University of Illinois
Urbana-Champaign, IL 61801

Dr. Amy MacDermott
Lab of Neurophysiology
NINCDS/NIH
Bldg. 36, Room 2C02
Bethesda, MD 20205

Dr. Marston Manthorpe
Dept Biology
Univ California/San Diego
School of Medicine
La Jolla, CA 92093

Dr. William Matthew
Dept Neurobiology
Harvard Medical School
25 Shattuck Street
Boston, MA 02115

Dr. Uel McMahan
Dept Neurobiology
Stanford University Sch Med
Stanford, CA 94305

Dr. John Merlie
Dept Pharmacology
Washington University
660 S. Euclid Street
St. Louis, MO 63110

Dr. Neil Nathanson
Dept Pharmacology
University of Washington
SJ-30
Seattle, WA 98195

Dr. Elaine Neale
Lab of Developmental Neurobiol
Child Health Human Dev/NIH
Bldg. 36, Room 2A21
Bethesda, MD 20205

Dr. Phillip Nelson
Child Health & Human Dev/NIH
Bldg. 36, Room 2A21
Bethesda, MD 20205

Dr. Paul Patterson
Dept Biology
California Inst Technology
Pasadena, CA 91125

Dr. Alan Pearlman
Dept Physiology & Biophysics
Washington Univ Sch Medicine
St. Louis, MO 63110

Dr. Karl Pfenninger
Dept Anatomy
Columbia University
630 W. 168th Street
New York, NY 10032

Dr. James Quattrochi
Dept. Neuroscience
Harvard Med Sch/Childrens Hosp
300 Longwood Avenue
Boston, MA 02115

Dr. Maryka Quik
Dept. Pharmacology
McGill University
3655 Drummond St.
Montreal, Quebec CANADA H3G1Y6

Dr. Martin Raff
Zoology Department
University College London
Gower Street
London WC1E 6BT, UNITED KINGDOM

Dr. Mario Rattazzi
Dept Pediatrics, Biochem Genet
North Shore Univ Hospital
300 Community Drive
Manhasset, NY 11030

PARTICIPANT LIST

** Conference : 10 -- Neuronal Cell Cultures **

FASEB SUMMER RESEARCH CONFERENCES

Dr. Peter Richardson
Dept Neurosurgery
Montreal General Hospital
1650 Cedar Ave.
Montreal Quebec CANADA H3G1A4

Dr. Richard Riopelle
Dept Medicine/Neurology
Queen's University
146 Stuart St.
Kingston, Ontario CANADA K7L 3N6

Ms. Kimberly Rogers
Physiology & Biophysics SJ40
University of Washington
Seattle, Wa 98195

Dr. John Salon
Biochemistry
Columbia University
630 West 168th Street
New York, NY 10032

Dr. Joshua Sanes
Dept Physiology
Washington University Med Cntr
660 S. Euclid Street
St. Louis, MO 63110

Dr. Melitta Schachner
University of Heidelberg
IM Nuenheimer Feld 504
D-6900 Heidelberg, W. GERMANY

Dr. Michael Schramm
Nat Inst Neu & Comm Disord/NIH
Hebrew University of Jerusalem
Bldg. 10, Room 3D-04
Bethesda, MD 20205

Dr. Bruce Schrier
Molec Neurobiol. Unit
NICHD/NIH
Bldg. 36, Rm. 2A21
Bethesda, MD 20205

Dr. Joan Schwartz
Lab Preclinical Pharmacology
NIMH/St. Elizabeths Hospital
WAW Building
Washington, DC 20032

Dr. Shantilal Shah
Brain Behavior Research Center
Sonoma Development Center
Elbridge, CA 95431

Dr. Joel Sheffield
Dept. Biology
Temple University
Philadelphia, PA 19122

Dr. Vincenzo Silani
Dino Ferrari-Neuromuscular Dis
Univ of Milan Medical School
Policlinico Hospital
Milan 20122, ITALY

Dr. Robert Skoff
Dept. Anatomy
Wayne State Univ Sch Medicine
Detroit, MI 48201

Mr. Jes Stollberg
Dept Biology (B-022)
Univ California/San Diego
La Jolla, CA 92093

Dr. William Strauss
Lab Developmental Neurobiology
NICHD/NIH
Building 36, Room 2A21
Bethesda, MD 20205

Dr. J. G. Sutcliffe
Molecular Biology
Scripps Research Institute
10666 N. Torrey Pines
La Jolla, CA 92037

PARTICIPANT LIST

** Conference : 10 -- Neuronal Cell Cultures **

FASEB SUMMER RESEARCH CONFERENCES

Dr. Jane Talvenheimo
Dept Pharmacology
University of Washington
Seattle, WA 98195

Dr. Hans Thoenen
Dept Neurochemistry
Max-Planck Inst Psychiatrie
AM Klopferspitz 18a
8033 Martinsried/Munich WEST GERMANY

Dr. C. Dominique Toran-Allerand
Dept Neurology/Anat Cell Biol
Columbia Univ. Col. Physicians
630 West 168th Street
New York, NY 10032

Dr. David Trisler
Lab Biochem Genetics
National Institutes of Health
Bldg. 36, Room 1C-07
Bethesda, MD 20205

Dr. Thomas Wallace
Department of Pharmacology
Washington Univ Medical School
St. Louis, MO 63110

Ms. Reitha Weeks
Genetics Dept., SK-50
University of Washington
Seattle, WA 98195

Dr. William White
Toxicology Branch
Chemical Research & Dev Cntr
Aberdeen Proving Ground,
MD 21010

Dr. Jonathan Wilkin
Chief, Dermatology Section
Veterans Administration
1201 Broad Rock Boulevard
Richmond, VA 23249

Dr. Feng Zhou
Dept of Biology
Washington Square
New York University
New York, NY 10003

Dr. Richard Ziegler
Dept Mid Microbiol & Immunolog
Univ Minnesota Med Sch/Duluth
Duluth, MN 55812

SUPPLEMENTAL PARTICIPANT LIST : ** Conference : 10 -- Neuronal Cell Cultures **
FASEB SUMMER RESEARCH CONFERENCES

Dr. Barry Carlin
Dept of Pharmacology
Wash Univ Sch of Med
St Louis, MO 63110

Dr. Randall Pittman
California Inst Tech
Pasadena, CA 91125

Dr. Lianne Reif-Lehrer
20 Staniford St.
Eye Res Inst of Retina
Foundation & Harvard Med Sch
Boston, MA 02114

Dr. Linda Vician
Tumor Inst.
Hutchinson Cancer Res
Seattle, WA 98104

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